**Course: Object-Oriented Programming**

**Lab 11**

**File Handling**

**Task 1:**

Create a fully encapsulated class Student which has the following attributes, id, name, age, and address of type Address. In the Address class create two private attributes named city and country. In both classes, create a fully parameterized constructor.

In the StudentTest class, create an array of students of n size. Create a method named writeDataonFile Write the data of all attributes in a file named “StudentData.txt”. Create another method named readDataFromFile which will read the data of all attributes from the files created above and save it in the appropriate objects.

Create another method named “copyDataOnFile.txt” and copy the data of all students from the file “StudentData.txt”. Once the data is copied, print the total number of students.

Hint: to copy data use FileWriter class which has a file path and a boolean attribute representing whether you want to append or not.

FileWriter f = **new** FileWriter(**"FileName"**, **true**);  
Formatter obj = **new** Formatter(f);

**Task 2:**

Implement a Java program that inputs 10 integers from the user, write them on file named as “data.bin”. Your program then reads “data.bin” containing a sequence of integers. The program should find the maximum and minimum values from the file and display them on the console.

Write Java code to accomplish this task. Make sure to include the necessary file-handling operations to read the binary file and process its contents.

Your program should:

1. Open the "data.bin" binary file for reading/writing.

2. Read the sequence of integers from the file/user.

3. Find the maximum and minimum values from the sequence.

4. Display the maximum and minimum values on the console.

5. Close the file after reading from it.

Implement the Java code to read the binary file, find the maximum and minimum values, and display them on the console.